Space Weather Forecast

Issued on Monday 17 March 2025 at 12:50 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate class flares likely. Chance G1/Minor Storms Day 1 (17 Mar). Slight chance of glancing CME (19-20 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with only common-class flares observed, with the strongest from the region in the southeast disc. There are thirteen sunspot regions on the Earth facing disc, however the majority of these are small and simple. The main growth has been in this southeastern spot, with the emergence of intermediate spots, but also with a small development to the south of the region that is now approaching the north-centre disc. The two main regions of previous interest, one in the northwest and another in the southwest, are showing signs of simplification.

An eruption off the northeast disc around 16/2020 UTC appears to have produced a Coronal Mass Ejection (CME) that has been deflected quite far south and west. This has been analysed as a possible glancing blow either late on 19 Mar or early on the 20 Mar. However, this is currently low confidence, with further analysis on-going.

Another filament eruption (arc of plasma) was observed lifting off the northwest quadrant around 17/1035 UTC. This event will be analysed for any Earth-directed components once imagery becomes available.

Solar Wind / Geomagnetic Activity: Solar winds showed the recent fast winds easing. Speeds declined from slightly elevated levels of around 450 km/s to be near background, around 400km/s. Interplanetary Magnetic Field was weak with the north-south component also weak and variable. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with an ongoing likelihood of isolated Moderate flares.

Solar Wind / Geomagnetic Activity: A filament lift-off (arc of plasma) in the northeast observed at 16/2020 UTC produced Coronal Mass Ejection (CME), which appears to be heading north and east. However, after recent analysis, this looks to give a slight chance of a glancing blow either late

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on Day 3 (19 Mar), or early on Day 4 (20 Mar). This is currently low confidence, with further analysis on-going. Otherwise, fast winds from a coronal hole have now largely eased, but with the chance for a further enhancement Day 1 (17 Mar) from any fast winds associated with a southern coronal hole. This enhancement is low confidence, however.

Geomagnetic activity is likely to be mainly Quiet to Unsettled, with a slight chance of Active to G1/Minor Storm, if any further enhancement from the southern coronal hole occurs on Day 1 (17 Mar). Slight chance of Active to G1/Minor storm late on Day 3 (19 Mar) and Day 4 (20 Mar) due to a slight chance of glancing CME arrival. Low confidence.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels, with a slight chance of enhancement should there be any larger flares.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	5	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

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Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	10	10
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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